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In Response

The Importance of Analysis in Behavioral Technology: A Response to Paine and Bellamy

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Paine and Bellamy (1982) tackle challenging issues regarding the public adoption of new technology in their article, "From Innovation to Standard Practice: Developing and Disseminating Behavioral Procedures." I found their comprehensive taxonomy of procedural implementation to be valuable as a proposed continuum of professional activities. I have concerns, however, about three points: the critical features of the technology to be disseminated, the overlap of basic and applied issues in the practices called "dissemination," and the question of how Paine and Bellamy's proposed taxonomy relates to current training programs for behavior analysts.

A behavioral approach to solving major social problems remains as promising to many people within our field as it is threatening to those with contrary views about the causes of human behavior. Good data alone will simply never produce enough interest for adoption of behavioral technology. Nor will the current membership of ABA be sufficient to carry out the widespread service delivery needed. Thus, it seems we need a long-range plan for making an impact on public policy, and Paine and Bellamy suggest such a plan.

Their approach involves a three-stage linear model, which guides behavioral researchers from initial discovery of functional relations, through demonstrations which provide convincing evidence to consumers, to the implementation of large-scale programs. Their presentation is quite thorough, making reference to the ultimate need for specification of staff training materials, cost-benefit analyses, and a host of other administrative and support-service products. These factors extend well beyond the initial concern for dependent and independent variables and are necessary for adoption of a technique as standard practice.

One of the major concerns with the proposed taxonomy is the heavy emphasis on specific *techniques*. The terminal links of Paine and Bellamy's system involve neatly packaged models of behavioral procedures, designed for use by "non-developers" (under the direction of a developer). This appears to be a point at which the techniques become separated from an important part of the behavioral technology—the actual analysis of contingencies. I find this a potentially dangerous separation.

I believe that the analysis of contingencies represents an integral part of the unique contribution which behavioral science can make in applied as well as basic endeavors. That is, a significant social problem reflects a relation between certain behaviors and environmental events. As such, successful interventions imply not only use of a technique, but correct decisions about the appropriate occasions for its use and accurate interpretations of its effects.

Many people in the field have debated about basic and applied distinctions in terms of the possible differences in research purpose, the orientation (e.g. problem vs method), and the degree of integration of basic principles (e.g., Birnbrauer, 1979; Hayes, Rincover & Solnick, 1980; Pierce & Epling, 1980). The question I am raising addresses not applied research, but dissemination, and whether or not we can eventually derive procedures and techniques for mass dissemination by those who have not been trained with regard to the principles underlying their effectiveness. I believe

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our long-term success demands that we work against ths outcome.

One of the primary advantages of behavioral treatments arises from their direct focus on relations between stimulus changes and behavior across time. The central theme that a particular history of contingencies played a major role in a current problem also suggests possible continued behavior changes in the future. Therein lies the importance of function, which our technology must sustain.

For example, a technician might accurately follow a treatment package description, but it represents a static set of events that affects behavior under current circumstances, which may indeed change. The behaviorally-naive technician may conclude that these behavioral techniques sometimes work and sometimes do not work. But the fault may not be in the features of the procedures, nor even in the implementation of each step; the problem may be in the failure to correctly interpret the relations between the current conditions, the behavior, and the effects of intervention.

Such interpretive skills probably play a greater or lesser role according to the nature of the problem at hand. For example, one might be fairly successful at standardizing a package designed to teach a new skill (i.e. build the repertoire); however, when the goal is instead to alter a complex existing repertoire, the situation may demand more analysis of controlling variables. Given the complex and multiply-controlled nature of social problems in education, government, child development, environmental hazards, and the like, I believe it limits our possible contribution to suggest a general strategy which results in behaviorally-naive technicians following a cookbook approach to solving social problems.

Skinner (1978) notes that the traditional conceptualizations of the causes of human behavior restrict much of the potential benefit from the behavioral technology already available. This problem will not be addressed through plans to disseminate procedures and techniques alone. Thus, once we separate techniques from the analysis which accompanied their development, others may unknowingly use them somewhat differently, interpret their effects in their own way, and derive faulty conclusions about the value of the behavioral approach. Skinner (1972) said, ". . . a new interpretation here, a conspiracy of silence there, and the trick is turned; and this will continue to be so until a new and effective theory is worked out (p. 312)." To work toward dissemination of the analysis as well as the techniques seems to maximize our effectiveness.

A second concern is that the behaviors one engages in to influence consumers, train staff, convince funding sources, and other service delivery tasks are topics for study in themselves. Many research efforts address such administrative, managerial, and service functions in the specialty area of organizational behavior management. It seems that we are far from having all the answers about the effectiveness of dissemination activities, and they are factors that can influence the success of a procedure. We should not overlook dissemination research to identify which activities are most useful in what instances; I would encourage a parallel system of innovation-to-practice for them.

A final comment on the article concerns the authors' proposal for impact on undergraduate and graduate training programs. In their introduction, Paine and Bellamy gave as one of four advantages of the development/dissemination taxonomy the fact that "it could help structure undergraduate and graduate student training programs in behavior analysis (p. 29)." However, it is unclear how we should proceed, and the authors do not provide guidelines. The importance of this issue is related to the current controversy over applied vs basic training and how much of each is optimal for students (e.g. Michael, 1980; Baer, 1981). It is difficult to determine exactly where any one individual fits into the taxonomy provided, and the degree to which students should be trained at each level of development or dissemination. After all, any time spent training a student in service delivery practices is time away from basic training

in research methodology (and vice versa). Furthermore, the degree of generality of training and long-term professional usefulness are different for schooling in the basic principles and training in procedural/service functions which change over time. Thus, Paine and Bellamy's comprehensive taxonomy enters as a new product in this debate and raises further unanswered questions about viable training programs.

In conclusion, the issues Paine and Bellamy raise are crucial to the future of behavior analysis and the ways in which we transmit findings to the culture at large. The authors provide a thorough and systematic treatment of practical issues necessary to bridge the gap between academic research and the social problems to which they are relevant. I see a need to address the additional issues of dissemination of the analysis, as well as a consideration of the controlling variables for disseminators and consumers—an area of development itself. Furthermore, those who encourage the proposed line of dissemination must determine the training needed at each level and propose its integration with current behavior analysis programs.

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